

Name: _____

Period and Group: _____

IONS AND ISOTOPES

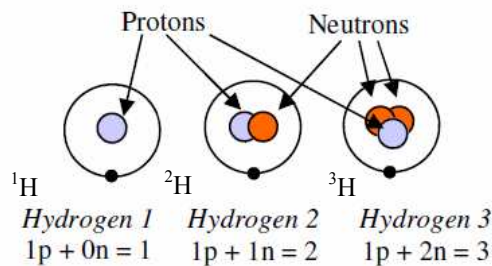


Isotopes

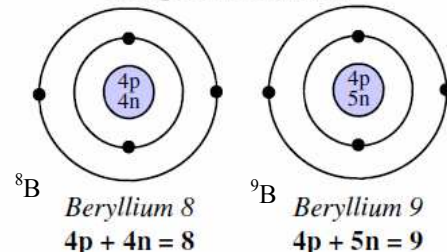
Definition:

Naming Isotopes

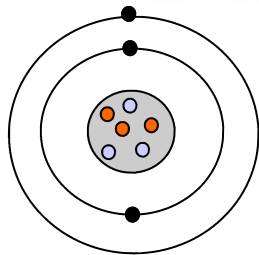
Chemical Symbols of Isotopes



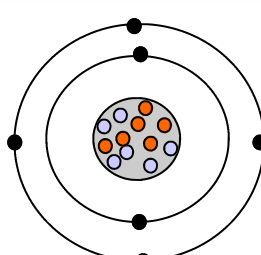
Isotopes of Beryllium



What is the Name of the Isotope?



P= _____
 N= _____
 Mass of this Atom _____
 Expected N= _____
 Is this atom and isotope?



P= _____
 N= _____
 Mass of this Atom _____
 Expected N= _____
 Is this atom and isotope?

What is the Name of the Isotope?

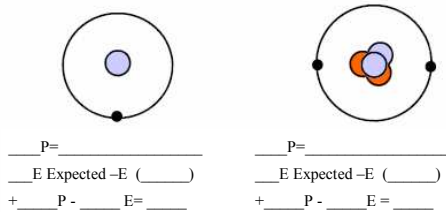
What is the Chemical Symbol of the Isotope?

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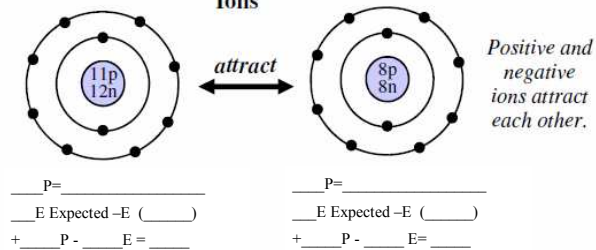
Ions and Neutral Atoms

Definition:

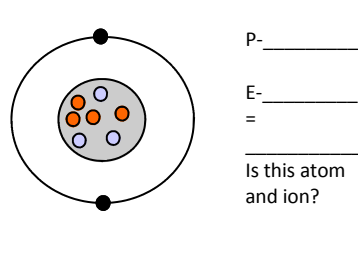
Neutral Atoms



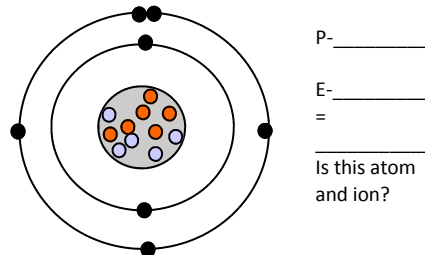
Ions



What is the Chemical Symbol of the Ion?



P= _____
 E= _____
 = _____
 Is this atom and ion?

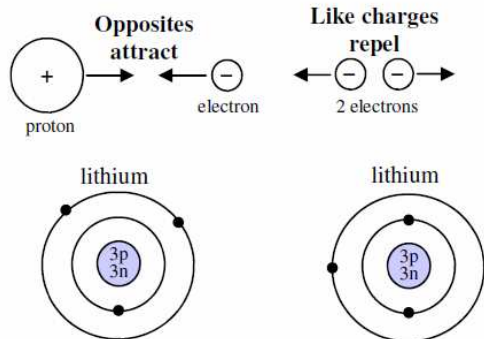


P= _____
 E= _____
 = _____
 Is this atom and ion?

What is the Chemical Symbol of the Ion?

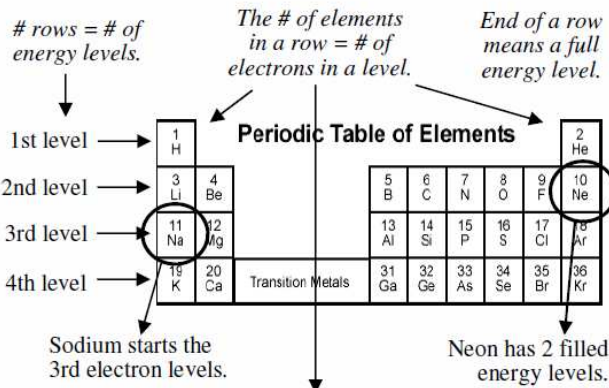
Electrons Orbits

Electrons will want fill up inner orbits first to get as close to the nucleus as possible. They also want to stay as far away from each other as possible.



Incorrect! - The electrons will fill up the inner levels first. The first level takes 2 electrons.

Correct! - Inner orbit is full (with 2); one outer electron.



1st row has 2 elements, so the first energy level can hold 2 electrons.

1. Isotope	A. An average of all the isotopes; the mass of average atom.
2. Atomic mass	B. An atom with an equal number of electrons and protons.
3. Atomic #	C. An atom with more or less electrons than protons.
4. Neutral atom	D. A variation of an element with a different number of neutrons.
5. Ion	E. Total number of protons and neutrons in the nucleus.
6. Mass #	F. Number of protons; determines the element.

7 protons and 10 electrons. *Neutral atom or ion?*
 15 protons and 15 electrons. *Neutral atom or ion?*
 35 protons and 37 electrons. *Neutral atom or ion?*
 89 protons and 89 electrons. *Neutral atom or ion?*

Give the element abbreviation and charge.

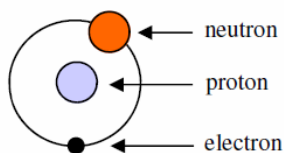
5 protons and 2 electrons: Element: B Charge: +3

16 protons and 18 electrons: Element: Charge:

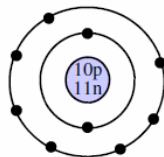
35 protons and 36 electrons: Element: Charge:

12 protons and 10 electrons: Element: Charge:

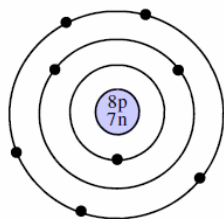
What's wrong with this picture of an atom?



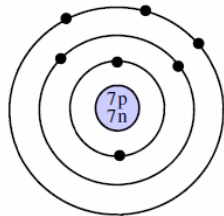
This picture is supposed to be of a neutral atom. Fix it.



What is wrong with this picture of an atom?



What is wrong with this picture of an atom?



For each of the following isotopes, write the number of protons, neutrons, and electrons.

Chromium	⁵⁸ Cr	⁶³ Cr	Carbon	¹³ C	¹⁴ C
# of protons	24	24	# of protons		
# of neutrons	34	39	# of neutrons		
# of electrons	24	24	# of electrons		
Atomic #	24	24	Atomic #		
Atomic Mass	58	63	Atomic Mass		
Total Positive Charge	24	24	Total Positive Charge		
Total Negative Charge	24	24	Total Negative Charge		
Sum of the Charges	0	0	Sum of the Charges		

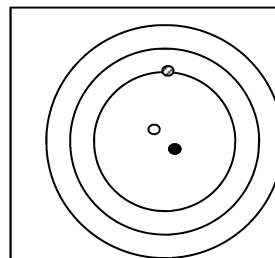
NAME?	¹² Na	²⁹ Na	NAME?	⁶⁹ Se	⁶⁵ Se
# of protons			# of protons		
# of neutrons			# of neutrons		
# of electrons			# of electrons		
Atomic #			Atomic #		
Atomic Mass			Atomic Mass		
Total Positive Charge			Total Positive Charge		
Total Negative Charge			Total Negative Charge		
Sum of the Charges			Sum of the Charges		

From the Bohr diagrams answer the following questions:

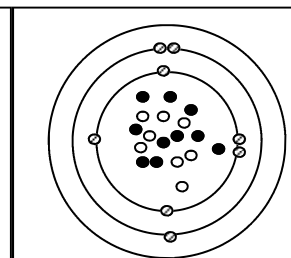
- How many Protons?
- How many Neutrons?
- How many Electrons?
- What is the Atomic Mass of the given atom?
- Is this atom an Isotope?
- What is the Atomic Symbol of this Element?

³⁰Si
(Example)

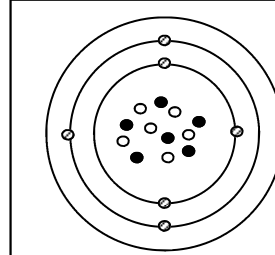
- =Electron
- =Neutron
- =Proton



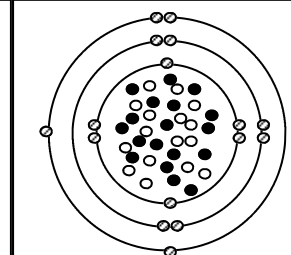
P= _____
 N= _____
 E= _____
 Atomic Mass _____
 Expected Atomic Mass _____
 Isotope? _____
 Atomic Symbol _____



P= _____
 N= _____
 E= _____
 Atomic Mass _____
 Expected Atomic Mass _____
 Isotope? _____
 Atomic Symbol _____



P= _____
 N= _____
 E= _____
 Atomic Mass _____
 Expected Atomic Mass _____
 Isotope? _____
 Atomic Symbol _____



P= _____
 N= _____
 E= _____
 Atomic Mass _____
 Expected Atomic Mass _____
 Isotope? _____
 Atomic Symbol _____

Give abbreviations and number of protons

Calcium (*Ca*) 20 Boron ()

Potassium () Selenium ()

Copper () Silver ()

Zirconium () Mercury ()

Which of the following are isotopes?

- Element A: 15 protons; 15 electrons; 16 neutrons
- Element B: 14 protons; 16 electrons; 14 neutrons
- Element C: 15 protons; 18 electrons; 15 neutrons
- Element D: 16 protons; 18 electrons; 15 neutrons
- Element E: 15 protons; 18 electrons; 14 neutrons